Portrait of an Eddystone 1830/1: 'The Silicon in the Crown' - by Gerry O'Hara, G8GUH/VE7GUH

Introduction

Having been somewhat (unexpectedly) smitten by my recently-acquired solid-state Eddystone receivers, an EC10 MkI and an EC958/3, I was interested in a tip-off I received late in 2008 regarding an Eddystone Model 1830/1 for sale here in Canada - the only catch being it was located in Nova Scotia (quite a hike from British Columbia - around 3,000 miles!). However, these sets do not come up for sale very often anywhere, never mind located in Canada – I can recall seeing only a couple for sale on Ebay worldwide in the past three years or so.

After a little deliberation, I decided that I had to have one of these receivers… and this was too good an opportunity to miss. So, I made contact with the vendor, a fellow radio amateur (VE1PJS), located in Truro, Nova Scotia. After some emailing and a photo or two, we spoke on the phone, struck a deal and arranged to have the set sent via Greyhound bus (well, it worked ok for my EC958 from Winnipeg). The set, S/N 350, duly arrived about a week later on an extremely cold and snowy Vancouver morning (yes, contrary to popular belief it does snow in Vancouver!). It survived the journey well, being double-boxed and with its front panel protected by a wooden plank. It came complete with a black desk-top case and weighed-in at around 40lbs: although it can work off either 12 or 24 volts DC, this isn't much of a portable tranny by any measure… so, what exactly did I buy myself?

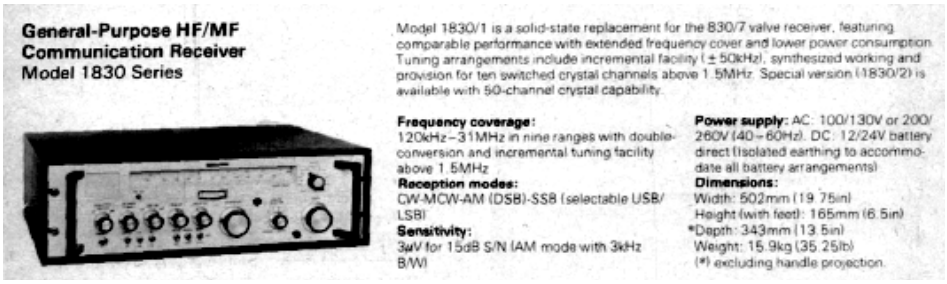
Above: One of the snaps that tempted me…

Overview of the 1830 Series

The QRG lists the 1830 Series as:

> '*1971-77 General purpose HF/MF solid-state replacement for the valved 830 Series. A medium-cost range of high-grade receivers for general applications in the band of 120kHz to 31MHz. All versions (at least 8) are based on the 1830/1 which was UK MPT-approved as a reserve receiver for CW, MCW, & AM for maritime installation. AC mains or 12 or 24 volt DC. Analogue dial (rotating drum). 10 crystal positions above 1.5MHz (some models were available with 50 crystal channels). 1971 – 74 £566-£644 plus case* [about half the cost of an EC958 in 1972]. *Medium rare.*'

The 1830 Series is a solid-state receiver of particular interest to me as it was partly contemporaneous with both the EC10 (1963 – 1977), albeit the EC10 was in its MkII form by 1971, and the EC958 Series (1969 – 1984). The 1830 Series was introduced to the professional receiver market as the solid-state replacement for the soon-to-be-discontinued (valved) S.830 Series (see advert, below), of which I own an S.830/4, the variant of this model made for the Canadian market. In addition, the 1830 Series was (almost) the last tunable HF receiver Eddystone introduced that did not have a digital frequency readout, ie. it was one of the last variations of the famous 'slide-rule dial' – photo, right (the Model 1004, produced from 1972 – 81, was the last HF model having this, and the 1990 series at VHF/UHF, produced from 1975 – 84, although this model series used a 36" metal 'film scale' roll rather than a movable pointer against a stationary scale). The 1830 Series main tuning mechanism has 9 ranges displayed on a rotating drum arrangement, each scale being approximately 8.5" in length, giving a total main tuning scale length of some 76.5".



On frequencies above 1.5MHz, however, the incremental tuning scale, of approximately 8" in length, covers 50kHz either side of the indicated main tuning frequency, allowing excellent bandspread and tuning accuracy.

I had read the circuit details of the 1830 Series in the manual I downloaded from the EUG site some time ago and it was apparent to me that the receiver topology was very similar to the S.830, but solid-state instead of 'hollow-state' of course. It is a second-generation solid-state receiver design, using silicon bipolar transistors, junction-FET's (JFETs) and dual-gate MOSFETS. There is only one solitary IC in the receiver, an eight-legged RCA CA3053, photo, left, (which contain only three transistors!) located in the noise limiter. So, although fairly up-to-date for 1970, in true Eddystone fashion, nothing too radical either. An overview of the receiver circuit is given below. Although reasonably simple conceptually, there are many detailed refinements in the electronic design that enhance its performance. This philosophy, coupled with the usual very high standard of build quality, electronically and mechanically, make for a very good general coverage receiver design for the period (and still a joy to use in my opinion – see discussion later).

Features and Circuit

Frequency Coverage and Tuning Facilities

In the 1830/1 and 1830/2 models, a total of 9 ranges cover 120kHz to 31MHz thus:

Range	Coverage	Conversion	IF1	IF2
1	18 to 31MHz	Double	Tunable 1300-1400kHz	100kHz
2	10 to 19MHz	Double	Tunable 1300-1400kHz	100kHz
3	5.5 to 10MHz	Double	Tunable 1300-1400kHz	100kHz
4	2.9 to 5MHz	Double	Tunable 1300-1400kHz	100kHz
5	1.5 to 2.9MHz	Double	Tunable 1300-1400kHz	100kHz
6	920 to 1750kHz	Single	-	100kHz
7	480 to 950kHz	Single	-	100kHz
8	240 to 480kHz	Single	-	100kHz
9	120 to 250kHz	Single	-	100kHz

The 1830/3 and 1830/4 models cover similar frequencies on ranges 1 through 6 and 9, but cover the following on ranges 7 and 8, leaving a gap in the tuning range between 535kHz and 920kHz, ie. the lower half of the medium-wave or 'Broadcast Band':

Range	Coverage	Conversion	IF1	IF2
7	400 to 535kHz	Single	-	100kHz
8	200 to 400kHz	Single	-	100kHz

Other variants exist, the list below being the most comprehensive summary I can find.

WJS/TM 7.6.72

1830 (S969) Communications Receiver

1830/1 Basic Receiver.

Frequency Ranges.

Range 1	18 - 31 MHz	Range 6	920	-	1750 kHz
Range 2	10 - 19 MHz	Range 7	480	-	950 kHz
Range 3	5.5 - 10 MHz	Range 8	240	-	480 kHz
Range 4	2.9 - 5.5 MHz	Range 9	120	-	250 kHz
Range 5	1.5 - 2.9 MHz				

1830/2 Frequency ranges as above.
Provision for 50 crystals (5 extra boxes)
8¾" high panel.

1830/3 Canadian. Ranges as above except:-
Range 7 400 - 535 kHz and Range 8 200 - 400 kHz.

1830/4 As /2 But Canadian ranges.
1830/5 As 1830/1 But Special SSB Filter(s) (Specify A or B)
1830/6 As 1830/3 But Special SSB Filter(s) (Specify A or B)

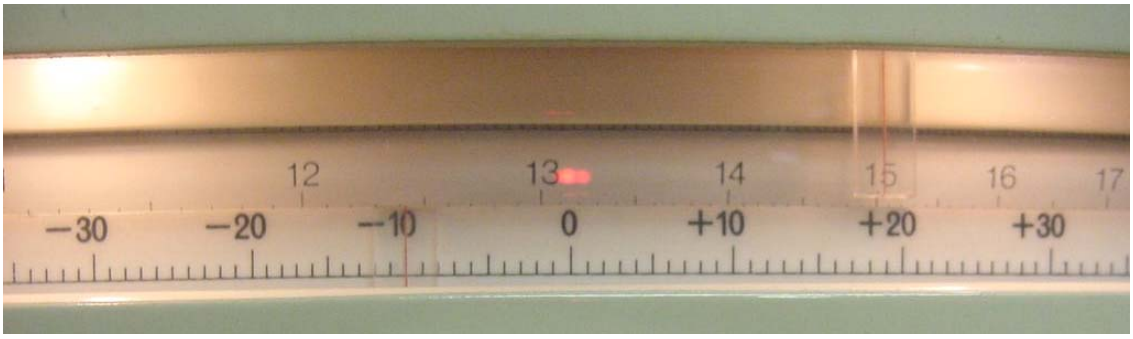
1830/7 50 Channel Version of 1830/5
1830/8 " " " " 1830/6

1830/9 As 1830/1 But Coverage down to 100 kHz.

1830/ICE. Provision for low freq. Crystal Control

Availability of the tunable 1st IF on the five highest frequency ranges provides an incremental tuning facility that is absent on the lower frequency ranges (6 to 9). The incremental tuning control covers a span of 100kHz (+/- 50kHz from the main tuning frequency), directly readable to within 1kHz by the scale markers and which can be easily interpolated to better than 500Hz. The photo at the top of the next page illustrates how this works: the receiver main tuning is set to 15MHz (confirmed by checking with the crystal calibrator and tweaking the 'Cal Adj' control if needed – see below), and the

incremental tuning set to -10kHz, thus in this instance the set is tuned to 14.990MHz.



As noted above, a crystal calibrator is provided to permit accurate setting of the tuning scales when combined with the mechanical 'Cal Adj' facility. Interestingly in my receiver, the crystal calibrator is fitted with a 500kHz crystal (as per the Issue 2 circuit diagram downloaded from the EUG site), not the 100kHz crystal as noted in the accompanying (Issue 1) manual text. I actually find the 500kHz calibrator far more useful than a 100kHz one at HF as it is much easier to be certain which harmonic you are tuned to, particularly at the upper end of the HF tuning ranges.

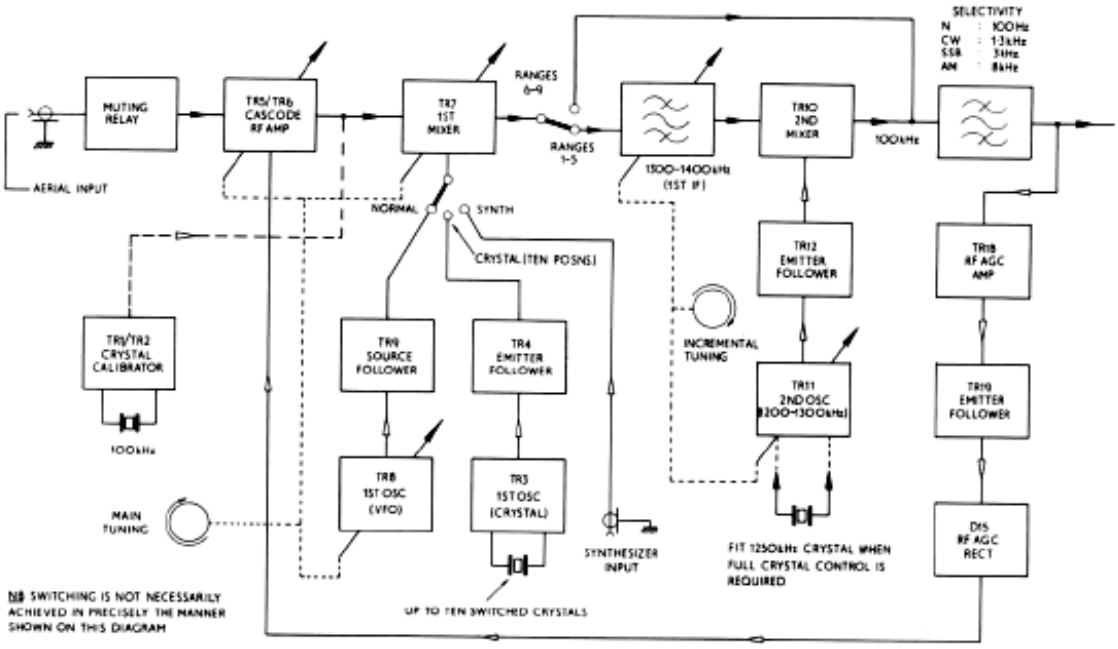
As can be seen from the table above, the 1830/1 and 1830/3 models allow for 10 crystal-controlled channels in the 1.5MHz to 31MHz range, along with an option to put the receiver under (external) synthesizer control. The 1830/3 series was made for the Canadian market and has the 'Broadcast Band' gap as noted above – interestingly, the S.830/4, also a Canadian market model, has a similar gap (though larger, being from 560kHz to 1.5MHz). Why this was specified I do not know – maybe the Canadian government did not want its folks whiling-away the time listening to Broadcast Band stations? Anyway, I am rather glad my set is not a 'real' Canadian model as I quite enjoy a spot of 'medium wave' DXing. The 1830/2 and 1830/4 models provide for 50 crystal-controlled channels. The 1830/5 and 1830/6 variants cover the same frequency range as the 1830/1 and 1830/3 respectively, but with special SSB filters fitted in lieu of the 3KHz selectivity position, with the 1830/7 and 1830/8 being 50 channel versions of these two models. The 1830/9 extended coverage on Range 9 down to 100kHz and the last variant produced, the 1830/ICE, provided crystal control on the low frequency bands.

A full description of the circuit is included in the manual, downloadable from the EUG site and is summarized below. Block diagrams of the receiver are reproduced below for ease of reference.

RF Amplifier/1st Mixer

A JFET and a single-gate MOSFET are deployed in a 'cascode' configuration as the RF amplifier stage, preceded by protection diodes and muting relay. A dual-gate MOSFET is used in the 1st Mixer stage with signal input to gate 1 and local oscillator (LO) injection to gate 2. All signal-frequency circuits are gang-tuned by the main tuning control. Bandpass coupling is used from the aerial to the RF amplifier stage on ranges 1 to 6 and single-tuned circuits on ranges 7 to 9. The

RF amplifier is coupled to the 1st Mixer using a variety of techniques aimed at maintaining relatively constant gain on all bands. Delayed AGC is applied at all times to the RF amplifier and there is no manual RF gain control. Three pairs of reverse-biased varactor diodes are connected across the first three sections of the main tuning capacitor gang. This arrangement forms the 'Peak RF' control, allowing independent adjustment of the signal frequency circuits when the 'Incremental Tuning' control is in use on the HF bands.



1st Local Oscillator

Two separate 1st LO circuits are present: one for 'Normal' operation , ie. a variable frequency oscillator (VFO) for manual tuning, and one for crystal-controlled (channelized) operation. A facility is also present for external synthesized frequency control.

The VFO stage employs a single-gate MOSFET in a tuned-gate configuration with feedback winding to the drain circuit. The tuned circuits are temperature-compensated and tracked to tune 1350kHz above the signal frequency on ranges 1 to 5, and 100kHz above the signal frequency on ranges 6 to 9. The oscillator output is taken via a JFET source-follower arrangement to provide isolation and reduce any tendency for oscillator 'pulling' under strong signal conditions to gate 2 of the 1st Mixer.

The crystal oscillator uses an un-tuned bipolar transistor circuit, again with an emitter-follower arrangement. The crystals are housed in a removable

compartment located behind (and containing) the 'Crystal Selector' switch. The method of calculating the correct crystal frequency is given in the manual.

Crystal Calibrator

The crystal calibrator deploys a bipolar transistor oscillator and harmonic amplifier circuit. Interestingly, my set's calibrator operates at 500kHz (as indicated on the Issue 2 circuit diagram), however the manual text downloadable from the EUG site with this circuit (Issue 1, dated November, 1971), as well as the advert (illustrated left) both indicate the calibrator to be fitted with a 100kHz crystal. The calibrator is switchable via a front panel control and its output is capacitive-coupled to gate 2 of the 1st Mixer.

Tunable IF

On ranges 1 to 5 (1.5MHz to 31MHz), the drain of the 1st Mixer is switched to the input of the tunable 1st IF section and coupled to gate 1 of the 2nd Mixer, a dual-gate MOSFET, via a gang-tuned bandpass arrangement covering the range 1300kHz to 1400kHz.

Oscillator injection for the 2nd Mixer is derived from a high-stability JFET oscillator and bipolar transistor emitter-follower arrangement covering 1300kHz to 1400kHz, ganged to the IF bandpass circuit. The oscillator output is injected into gate 2 of the 2nd Mixer. Provision is made for this oscillator to be locked using a crystal. Output from the 2nd Mixer is taken to the 100kHz IF filter unit in parallel with the direct connection to the 1st Mixer output on ranges 6 to 9.

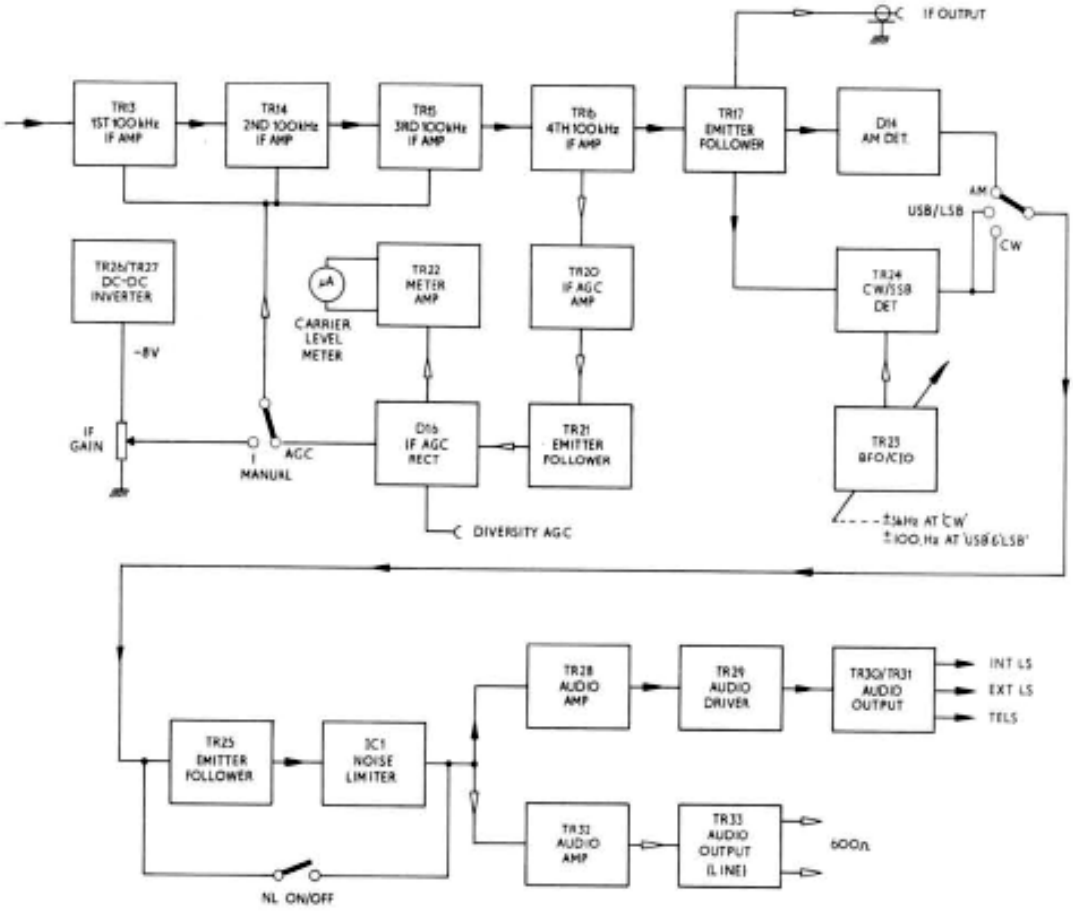
100kHz IF Amplifier

A four-position top-coupled LC 100kHz IF filter is employed between the output of the 2nd Mixer and the 100kHz IF amplifier, providing suitable bandwidths for AM, SSB, CW and CW (narrow) signals. The CW (narrow) position also includes a single pre-phased crystal filter. The filters provide 6dB bandwidths of 8kHz, 3kHz, 1.3kHz and 100Hz respectively.

Output from the 100kHz IF filter is fed to a cascaded four-stage JFET amplifier, which outputs to the AM detector via an emitter follower stage. A low-level 100kHz output is provided for the CW/AM product detector and external connection.

AGC Systems

Separate RF and IF AGC circuits are provided: the RF amplifier AGC line is connecter permanently, being fed directly from the output of the 100kHz IF filter, however this line operates under a highly delayed arrangement, such that it operates only at strong signal levels. The IF AGC line is fed from the final IF amplifier stage and controls the first three IF amplifier JFET stages under control of the Manual/AGC switch on the front panel. Fast and slow AGC time constants can be selected and manual control of the IF gain is provided. A DC/DC inverter provides the negative supply voltage required for manual IF gain control.



CW/SSB Detector and BFO

A dual-gate MOSFET is used as a product detector for CW/SSB reception, with signal input to gate 1 and oscillator injection to gate 2. The BFO/carrier insertion oscillator is a JFET. This is tunable +/- 5kHz on CW, but is offset 1.5kHz above/below the 100kHz IF for USB and LSB reception, with the BFO control then being limited to +/-100Hz.

Noise Limiter, Meter and Audio Circuits

Audio signals from the selected detector circuit are fed via an emitter-follower to IC1, this functioning as a clipper to mitigate impulse-type noise. The noise-limiter may be by-passed when not required, the audio signal then being fed to the AF amplifier via the AF gain control.

The carrier-level meter is operated from the IF AGC line through a JFET amplifier. The meter has a logarithmic response when under AGC control and a linear response when under manual control.

Two independent audio amplifier channels are provided with separate gain controls. The AF gain control feeds the High Level audio channel, whereas a pre-set line-level control feeds the Low Level audio channel, this being intended for connection to 600 ohm line circuits. The High Level Channel can feed an internal monitor speaker, external speaker or phones. Conventional bipolar transistor circuitry is used in both amplifiers.

Power Supply

The receiver can be operated from 100v to 125v AC, 200v to 250v AC, 12v or 24v DC. The power supply circuitry is of conventional design. All stages of the receiver operate from a regulated 11 volt supply, except the 100kHz IF amplifier, which has a 10 volt regulated supply, and the audio section which is fed from the 12 volt (unregulated) supply line.

Construction Details

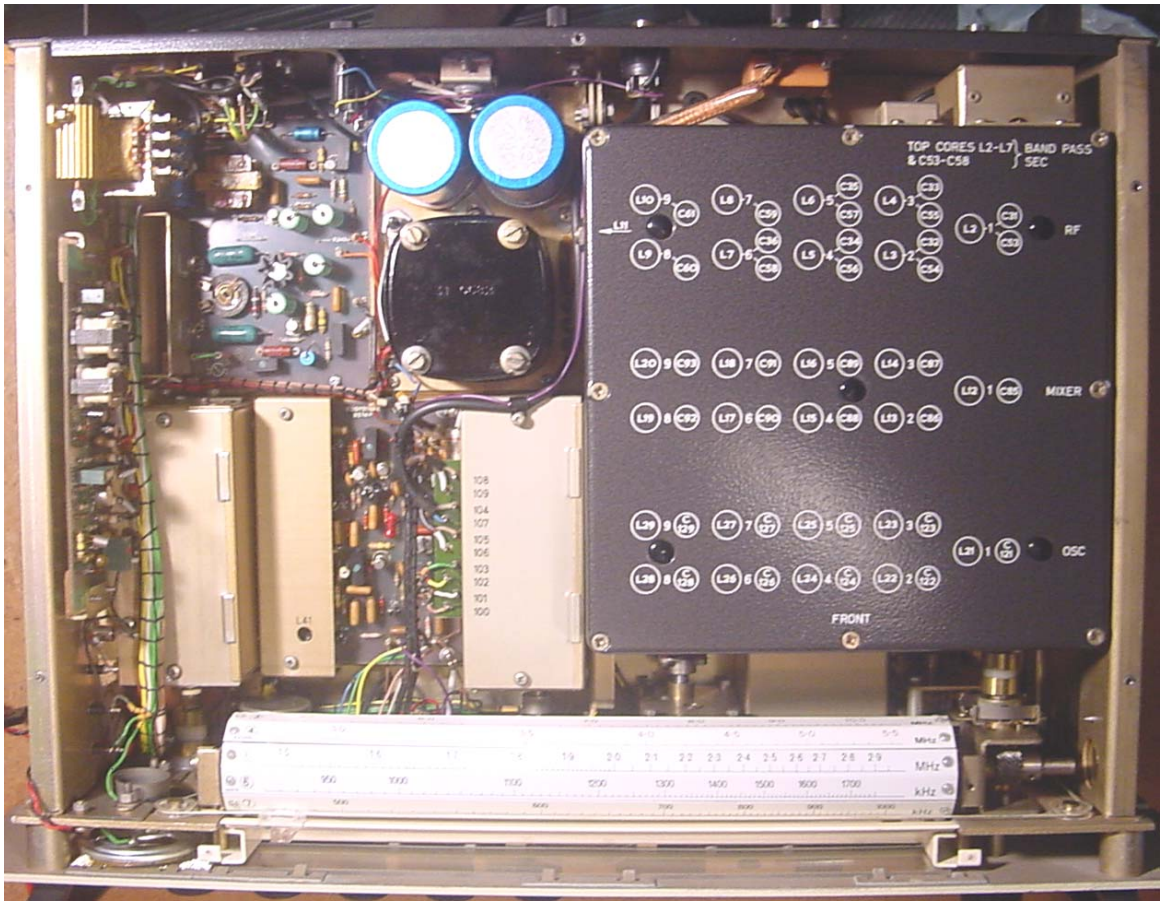
All models in the 1830 Series were rack-mounted, but were often supplied with an optional and very heavy steel desk cabinet (Model 8256P) as illustrated in the advert above – this was built to 'bombproof' standards and is finished in black to complement the handles and to contrast nicely with the front panel. The cabinet depth is such that with all cables removed it can be stood upright on its (rear) end for storage, all sockets and controls on the rear apron being recessed and thus protected from damage.

The front panel sports the 'modern' Eddystone 1970's yellowy-cream livery with black handles and black fluted knobs with chrome inserts (a new look for my Eddystone collection in which even my EC958 is finished in grey with chrome handles).

In my humble opinion, the controls are laid out is a very ergonomic fashion (photo, above) and, like the EC958, both feels good and 'looks right': the band changing and tuning controls can all be handled by the right hand, with the mode, AF/IF gain controls, Peak RF, BFO pitch, selectivity and various switches by the left hand. My only complaint is that the power switch is next to the CAL switch and I sometimes switch the set off by accident when I am not looking at what I am doing when using the calibrator (annoying, but not serious). The frequency display, although maybe rather 'old fashioned' by mid-1970's standards when many high-end receivers were appearing with digital displays, is perfectly adequate as noted above, allowing resolution to better than 500Hz by interpolation between the 1kHz marks on the incremental tuning scale. Another slight 'retro' feature is the side-reading signal strength meter (not a calibrated S-Meter), photo, right, that looks like a larger version of one that may be found on 1960's tape recorders – even so, it still looks the part with the front panel styling.

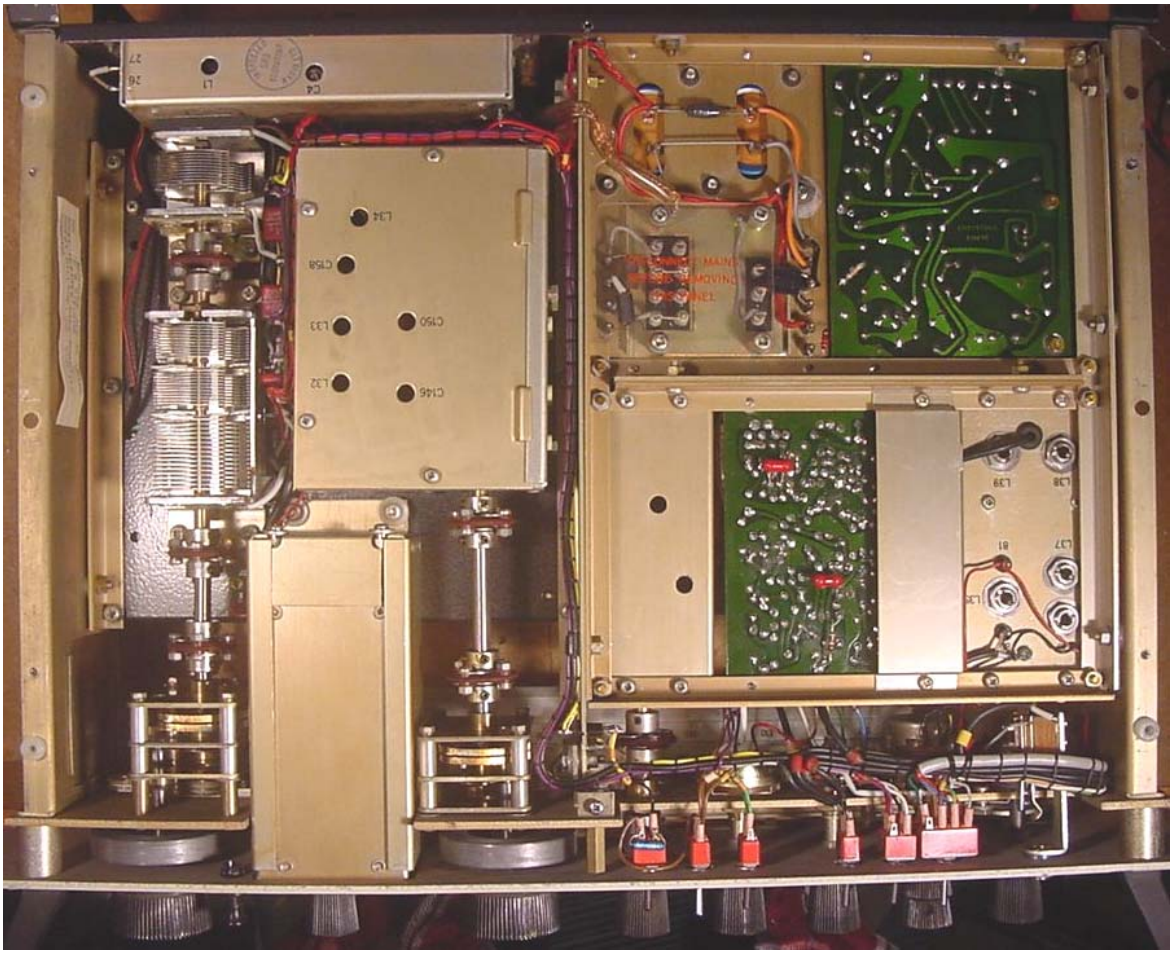
Internally the set is well up to the usual Eddystone build-quality. This set hasn't quite as much mechanical engineering built into it as it has electronics (as in the EC958), however, it does sport twin high-quality gearbox/flywheel tuning mechanisms for main and incremental tuning, both with the requisite cast-alloy flywheels to deliver the traditional Eddystone silky-smooth spin when tuning (photo, right).

The receiver is constructed in a modular fashion, the various units and printed circuit boards being mounted on insulated fixing points that serve to isolate the circuitry earth rail from the outer frame, front panel, side-plates and cabinet. This was done to eliminate the possibility of a short-circuit developing when the receiver was operated from a positive-earth battery supply as well as for safety reasons when powered from a battery on charge with both poles floating at a high voltage.



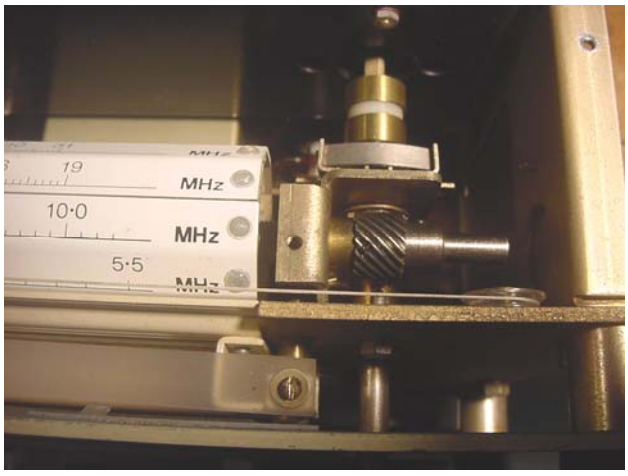
When viewed from the top with front facing towards you (photo, above), the RF section is located at the upper right, the audio section at upper left, with the power supply located between these at the rear. The 100kHz IF filter unit is located in front of the audio amplifier at bottom left, with the 100kHz IF amplifier circuit board and CW/SSB detector and BFO/carrier-insertion oscillator module located to its right. The noise limiter, signal-strength meter and negative supply circuit board is fixed to the (left) side panel, along with 'phones output transformer.

When viewed from beneath (photo at top of next page), again with the front panel towards you, the RF section is now at the upper left, with the tuning gang, crystal calibrator/relay unit and tunable 1st IF unit mounted beneath. The small 'Peak-RF' board is fixed to the side of the tunable IF unit and the crystal oscillator housing is located at the lower left, fixed to the front panel – the board containing the 10 crystal sockets and switch unit being removable from the front of the set. Access points to adjust the IF filter



and BFO are located towards the lower right. The various units are connected with the usual neat cable harnesses, giving a very professional appearance to the set's innards.

The RF section is an interesting construction, and typically Eddystone: the RF amplifier, 1st Mixer and tunable 1st LO circuitry and associated tuning coils and trimmers all being housed in a large diecast box ('coilbox') that is divided internally into three compartments: RF at rear, tunable 1st LO at the front, and the 1st Mixer in the central section, with all coil/trimmer locations clearly marked on the lid of the box for convenience during servicing.

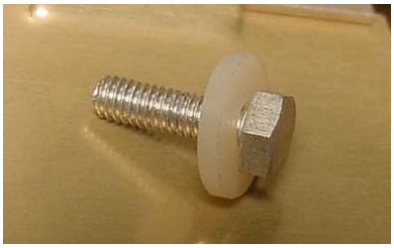


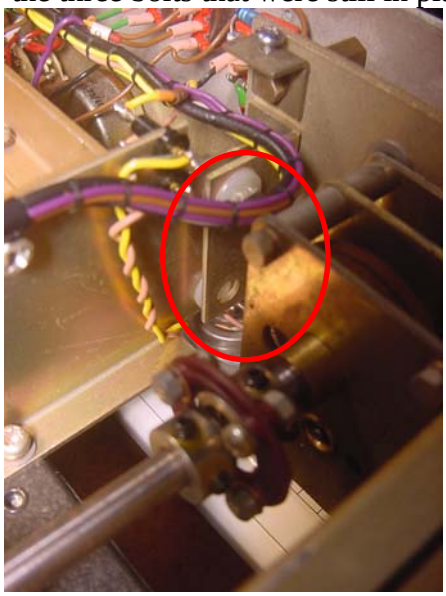
Another feature worthy of note in the 1830 Series, and which I think really gives the model its character, is the rotating drum dial system. This comprises two drum-end assemblies, rotated via a helical gear system (photo, right), onto which strips of plastic having the various range calibration markings are mounted. The selected range strip is brought into view behind a cut-out in the rear of the dial window. The rotating mechanism for this arrangement is very

robust as can be seen in the photos. The dial pointer is operated by a rather complex-looking dial cord arrangement, with the main tuning in the upper part of the dial window and the incremental tuning in the lower part. The dial is illuminated by two 'grain of wheat'- type bulbs soldered onto a thin printed circuit board mounted on the inside of the inner (top) cover of the receiver, connected to the set by a flat plug/socket.

Testing, 'Spruce-Up', Alignment Check

My set arrived in generally good condition, with its former owner noting that he had never had it out of its case (and apparently neither had the owner before that). It worked well on arrival, however, when I picked it up a few days later I heard a rattle from within… on opening up the case, a bolt fitted with a plastic bushing fell out (photo, right). This rang alarm bells with me and my heart skipped a beat as the words 'that could have shorted something out' flew through my mind. I quickly reconnected the set and it was still working well – phew! It took me several minutes to locate where the bolt belonged – it was one of four such bolts securing the central chassis member in place (location of one pair circled red on photo, below, left). On checking further, I found that the three bolts that were still in place were all loose. I eventually found the errant 4BA nut and lock washer lodged in a recess in the outer case. Replacement was a bit fiddly but I managed it in a few minutes, along with re-tightening of the other bolts. I can only imagine that the plastic (nylon?) bushings had 'morphed' slightly with age and this had caused the bolts to loosen. Travelling over 3,000 miles on a Greyhound bus probably was the final straw for one of them, it becoming completely loosened. I than checked all other bolts and screws on the chassis and everything else was ok. Good lesson to be learned here – never switch a set on before carrying out some basic checks – especially after it has travelled a long distance. In this case, if the bolt, nut or washer had landed on a circuit board/across some wires in the power supply or even in one of the gearboxes, the set could have been badly damaged.



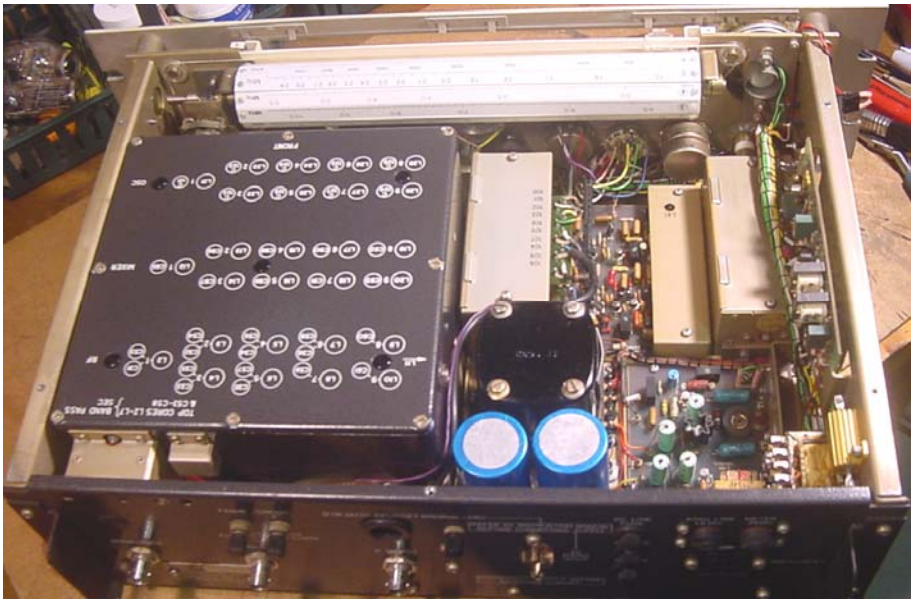


Having now made sure the set was mechanically ok, and as it was in generally good physical condition, I decided that all I would be doing to it initially would be a thorough cosmetic clean-up and alignment check.

I started by washing the outer case in warm soapy water. The case was quite badly scratched and scuffed (photo, top of next page), so I spent some time carefully buffing out scuffs and touching-up with a black indelible marker pen. The end-result is not 'perfect' but it very acceptable for a 35 year-old receiver. I then removed all the knobs to

allow thorough cleaning of the front panel – the only problem here was that the main tuning knob refused to budge from its shaft, even after I had managed to loosen its grub screw, and leaving it overnight with penetrating oil in the grub screw hole had not effect. I had to resort to gripping the flywheel in a small Stilson wrench and, after carefully twisting the knob on its shaft it finally started to move.

Once removed, I noted that the shaft was slightly corroded but not sufficient to have caused such a problem. Anyway, I used some emery-paper on the shaft to prevent a recurrence during future removal attempts. The front panel was cleaned with soapy water and then with an alcohol-water mix, finally polishing with Novus#1. It came up like new, save for a couple of very small areas along the base of the panel where the paint finish has chipped away. I may try to locate a suitable touch-up paint sometime for these areas, but they are so small you don't notice them unless you look very carefully. The knobs were cleaned with a toothbrush and soapy water and Novus#1 – these also came up like new. Each of the scale strips on the rotating drum was cleaned with soapy water and the acrylic dial on the front panel with



lens cleaner. I also used Q-Tips to clean the painted metal areas within the dial window surround, as well as the two scale cursors. Again, these parts all cleaned up like new. Inside the set, I used small paintbrush to dust the circuit boards and a little Novus#1 on the transformer and coilbox lid. The rear panel BNC sockets were cleaned with Silvo – all now Bath Tub fresh (photo, above).

Ok, time to try the set out…

Performance

Early days yet, however, I have found the 1830/1 receiver a delight to use from an ergonomic point of view, even though its control panel is the opposite layout to the EC958, with the 1830 Series having the band selector and tuning controls located on the right-hand side and all other controls on the left-hand side of the front panel. After a few minutes of operating however, I found everything seemed to be 'in the right place' with me instinctively reaching for the correct controls with either hand. I also like the drum dial, however, I found that the receiver definitely benefitted from being tilted upwards (as on a Model 989 plinth speaker for example) to allow the best viewing angle for the main tuning and the incremental tuning scales. On the HF bands, I found the incremental tuning very useful and easy to use. When combined with the internal crystal calibrator the set could be tuned easily to within 500Hz – adequate for anything I will be using it for.

Stability and scale accuracy are acceptable for a general-coverage receiver of its type. Although it does not have 'rock-solid' stability as achieved by Wadley-Loop or synthesizer circuits, or for that matter, the precision of a digital display, it is perfectly adequate for 'band cruising' - which I enjoy doing - and which this receiver excels at, with the incremental tuning facility 'in reserve' when needed. Of course a facility is provided for an external synthesizer input, as well as crystal-control for channelized operation, if more stability was ever needed.

I have found the 1830/1's sensitivity to be about as good as any other receiver I have, though it is maybe a little noisier than some. Also, I found that it can be overloaded with very strong signals and an attenuator (as in the EC958) may have been a useful addition – still one can easily be added as an external unit if needed.

The switchable 100kHz IF filter provides a good range of selectivities for different modes of operation and when combined with the front-end tuning arrangements, the receiver provides good overall selectivity and adjacent signal rejection.

The noise limiter functions quite well on ignition/static-type noise, though I am not really sure why the designer chose to use an IC when a couple of diodes would probably have done a similar job.

The internal monitor speaker is miniscule and audio quality from it is not that great, however, when an external speaker is fitted the set has very good audio quality.

I have not attempted any full re-alignment of my set (yet) as I checked the dial calibration and found it to be slightly off-frequency only in the upper half of Range 1 (19MHz to 31Mhz), such that the 'Cal Adj' control (photo, right) could not bring the set within acceptable calibration. The alignment procedure outlined in the manual is quite conventional, and all I had to do in this case was to tweak the appropriate LO trimmer (C121) at the upper end of range 1 (specified frequency of 30MHz), re-check the lower frequency check point at 19MHz, tweak the core of L21 very slightly, and then C121 again – done. I did not bother tweaking the associated RF and Mixer stage trimmers.

On the bands the set generally compares very well with my S.830/4 though early indications are that it is slightly more sensitive and somewhat more stable than its valved sibling. The IF filters are very good and I particularly like the LSB and USB positions, however, I do miss the continuously-variable IF selectivity provision of the S830/4. While I was undertaking this comparison though I noted several spurious signals on my S.830/4 that I had not noted before, especially when the RF and IF gains were fully up – I think it is probably time to replace all the remaining Hunts bypass capacitors in that set!

Conclusion

Having owned this 1830/1 for a couple of weeks now, and having searched through the available literature pertaining to it, I would say that the 1830 Series is probably an underrated, almost anonymous model – rather overshadowed by the technologically more advanced EC958 series. Indeed the 1830 Series receives only three references in the complete 96 issues of the EUG Newsletter/Lighthouse series (nothing technical at that -

one a reproduced advert, another about a model with German panel markings and the third about the 'ICE' suffixed model with crystal control of the LF bands). Nor was there a 'Featured Model' issue for this rather neglected set, whereas some models were featured more than once, and the poor thing doesn't even get a mention in the 'Cooke Report'. Having said that, maybe this is the case because it is reliable (hopefully!) and perhaps a bit, dare I say it, staid or even boring? Chris Pettitt did however mention the 1830 Series in his 1994 article in Practical Wireless (clipping, left), and noted to me recently that he always liked this receiver - as an ex-MD of Eddystone, he should know what's what don't you think?…

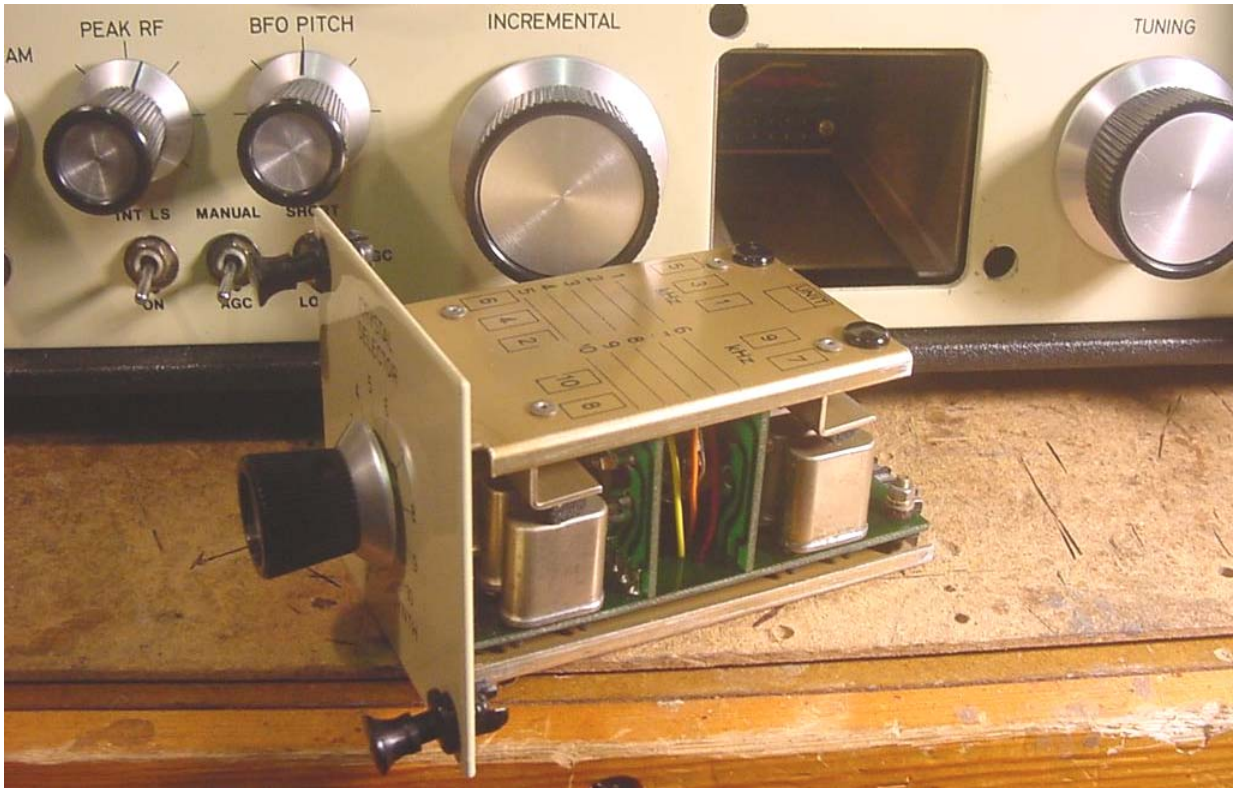

Chris Pettit G0EYO, Managing Director of Eddystone Radio Ltd., takes a brief look back at the history of one of the most famous names in radio.

The Edd

The Eddystone Radio museum, with Chris Pettitt G0EYO, Managing Director.

and I know that I'm really glad I now own a very nice example of one.

73's



Above: The crystal holder unit removed from the front panel

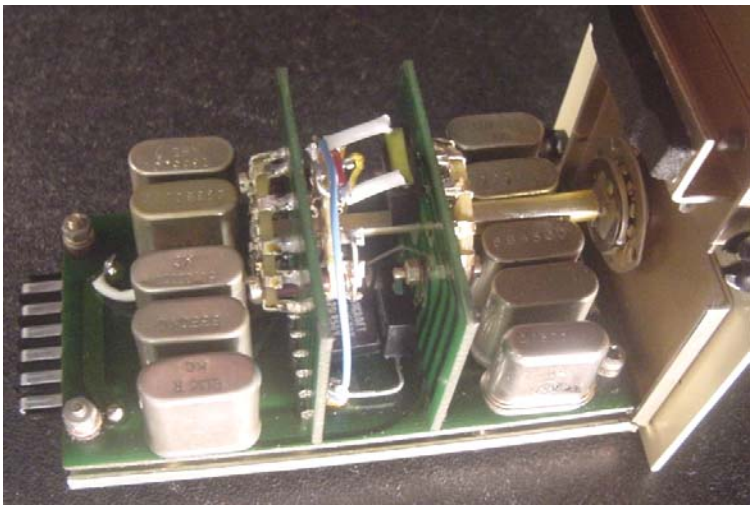
Some Further Reading/References on the Eddystone 1830 Series Receivers:

- 'The Ultimate Quick Reference Guide' (QRG) 2nd Ed. Graeme Wormald, 2002 pp45/46
- Manual for the 1830 Series (the one downloadable from the EUG website is Issue 1, dated November, 1971, however the circuit diagram attached is marked as Issue 2)
- Data Sheet covering the 1830 Series (the one downloadable from the EUG website is dated May, 1972)
- All three 'EUG Newsletter' articles listed below
- The Eddystone Story, Chris Pettitt, Practical Wireless, February, 1994

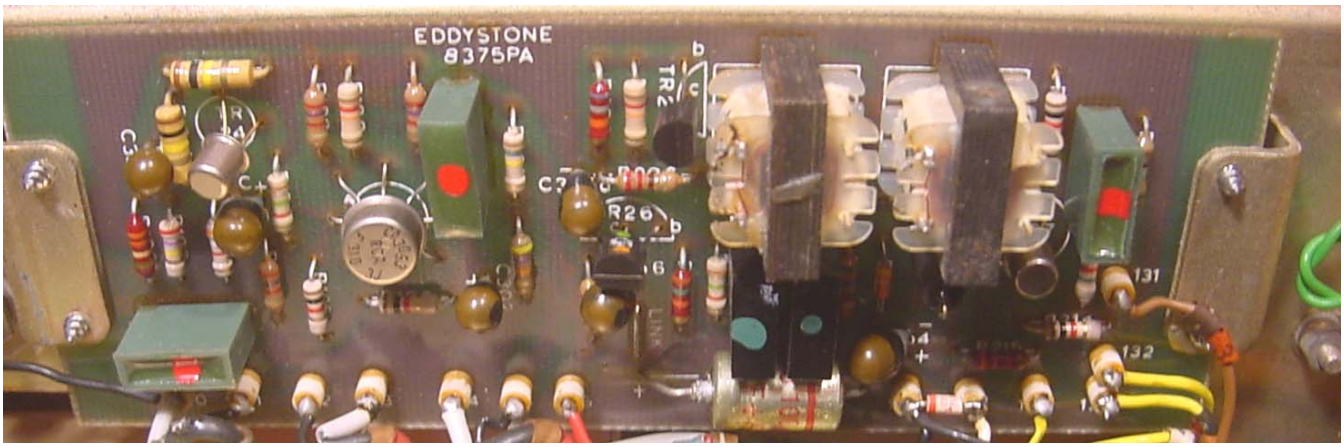
All the above can be downloaded from the EUG website, http://eddystoneusergroup.org.uk/)

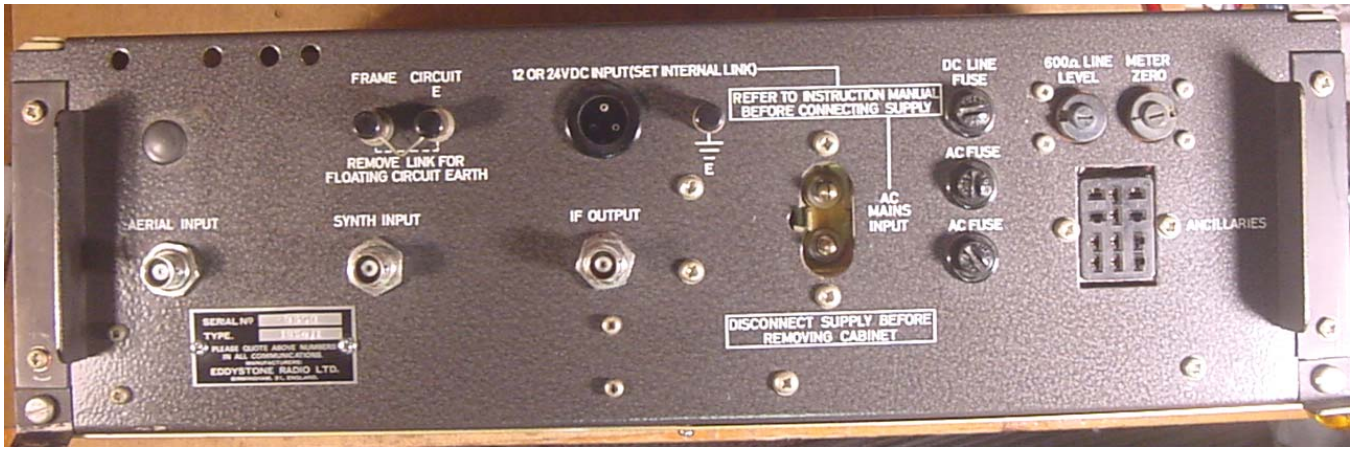
EUG Newsletter/Lighthouse (from 'Super Index')

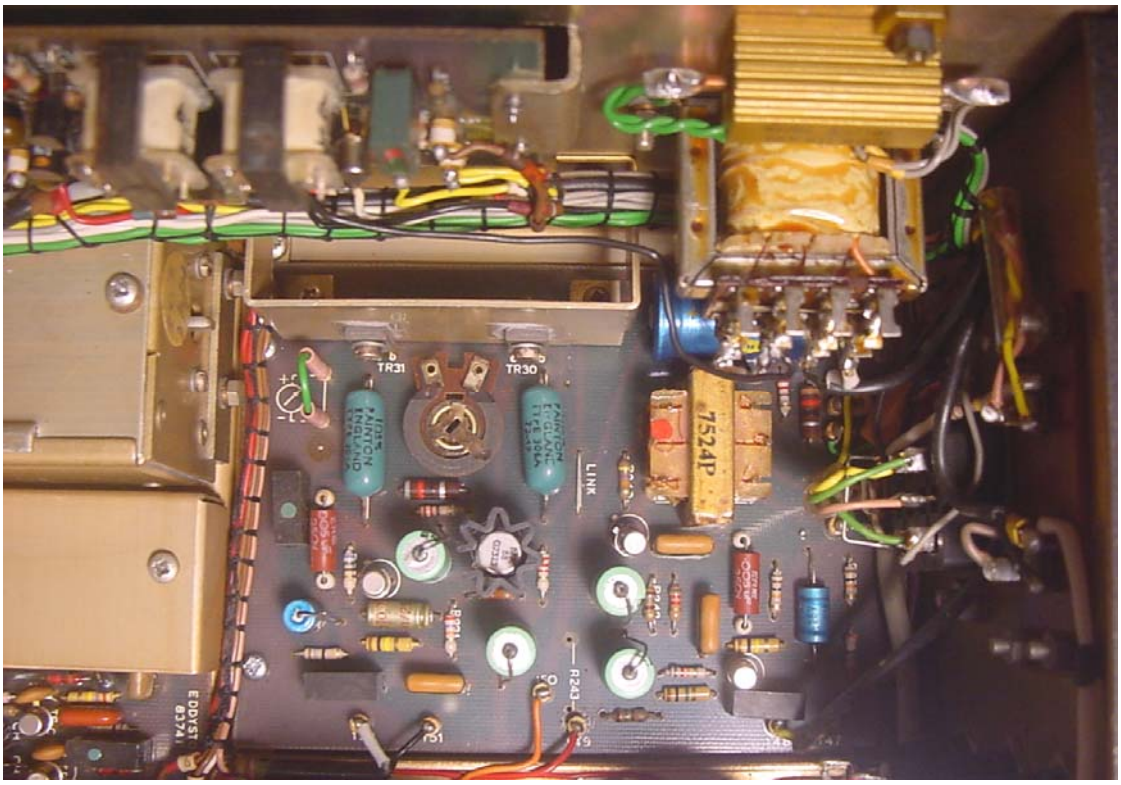
Above: Chassis removed from the outer case, top and bottom covers still in place – this is a very well-screened receiver

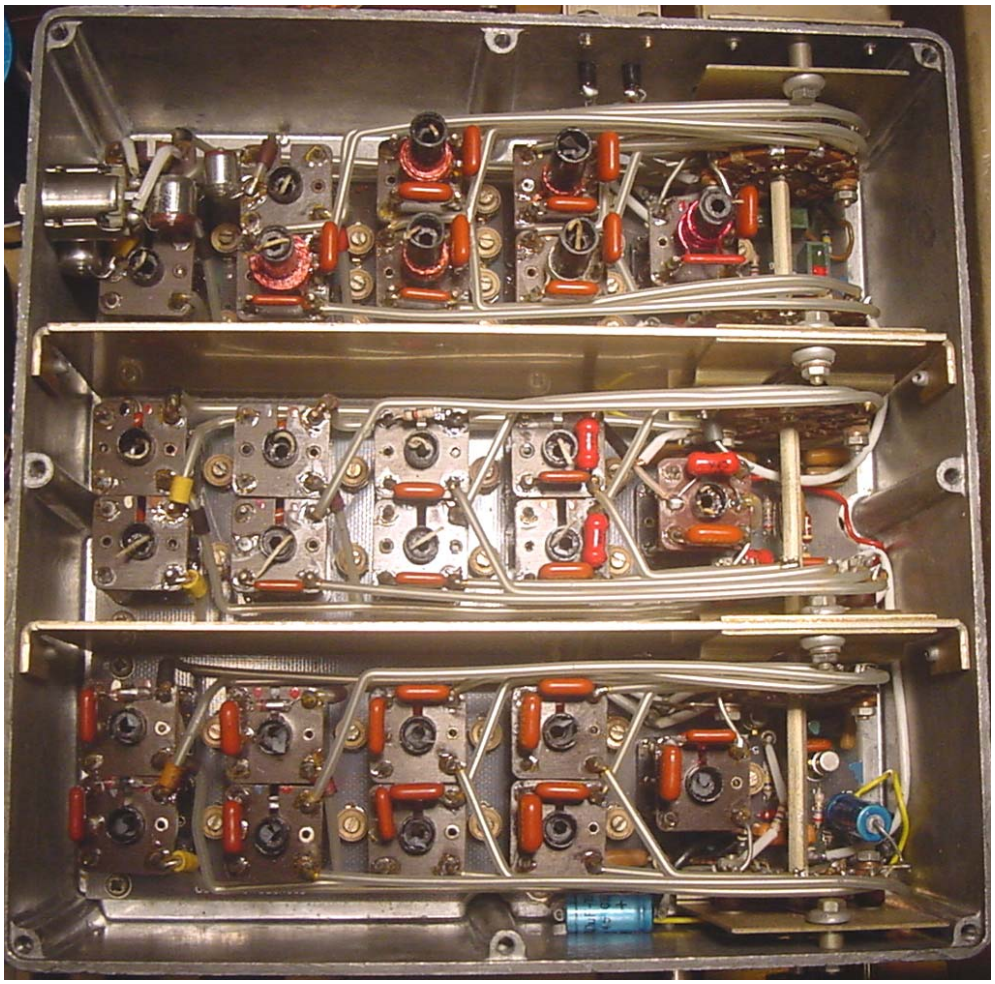


Above: Crystal holder with cover lifted up for access, Right: cleaning the inside of the dial with a Q-Tip moistened with lens-cleaner. Below (top): noise-limiter and negative supply circuit board. Below (bottom): view of rear panel





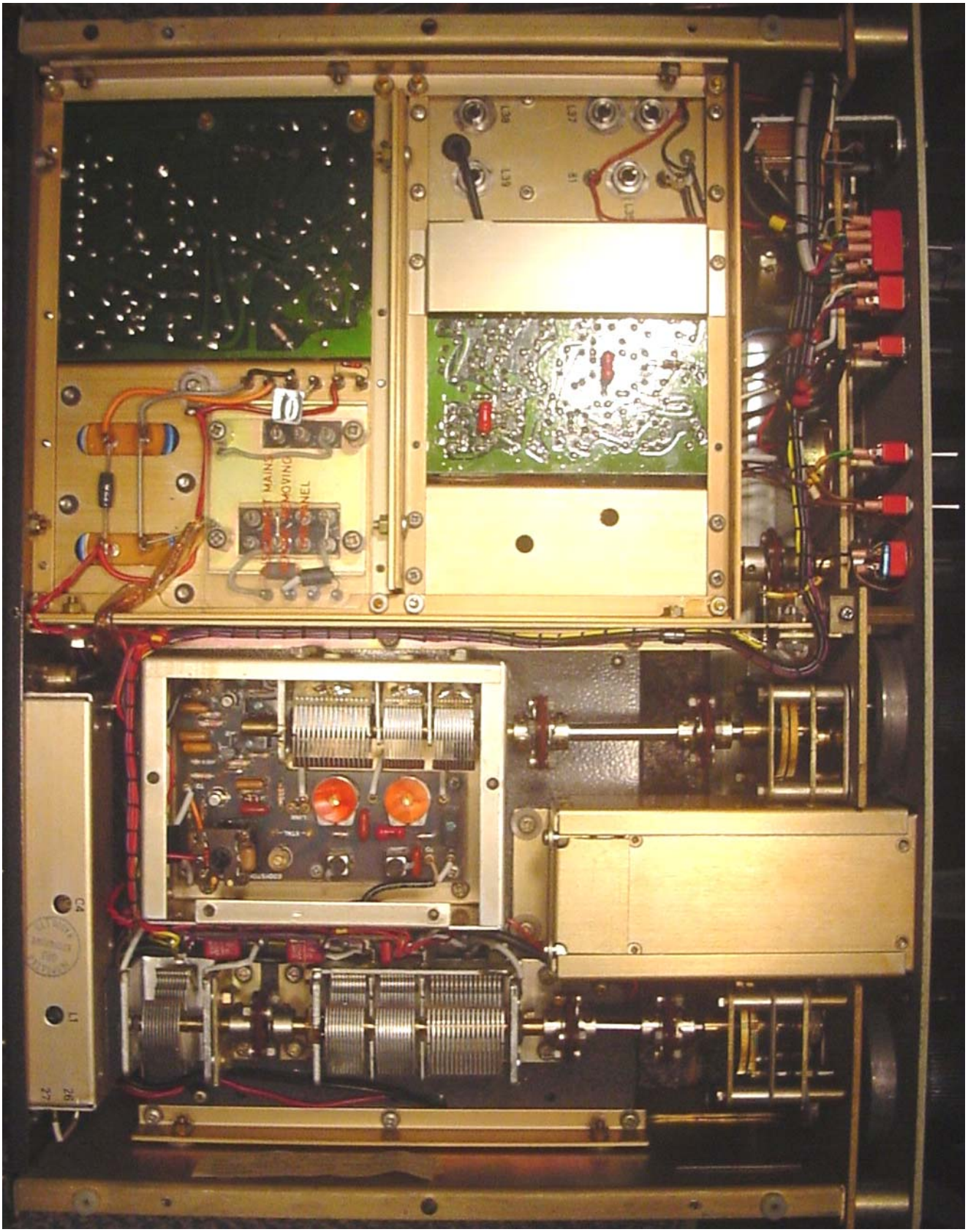




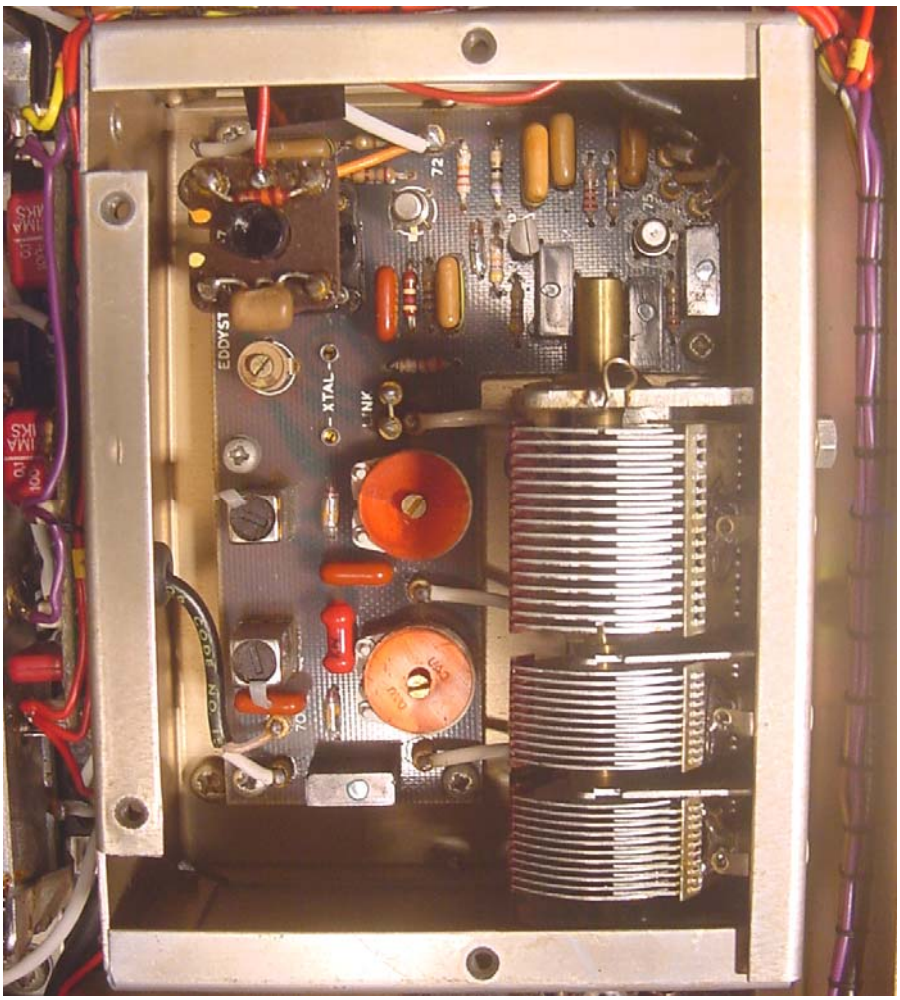
Above left: The AF circuit board. The high-wattage 10 Ohm aluminium-clad resistor affixed to the chassis side-panel (top, right of photo) is a dropper for 24 volt DC operation

Left: inside the coilbox – RF section at top, tunable 1st local oscillator at bottom and the 1st Mixer in the middle (looks a bit like a 'posh' EC10…)


CAL ADJ
PEAK RF
SELECTIVITY

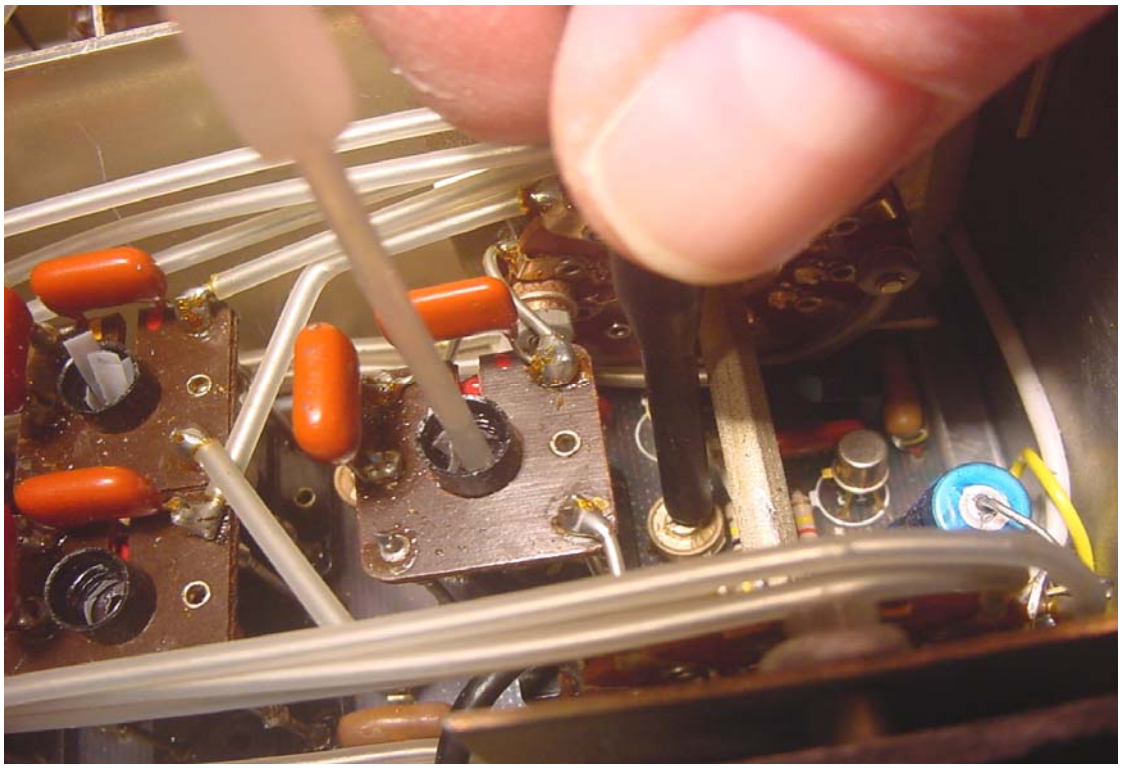


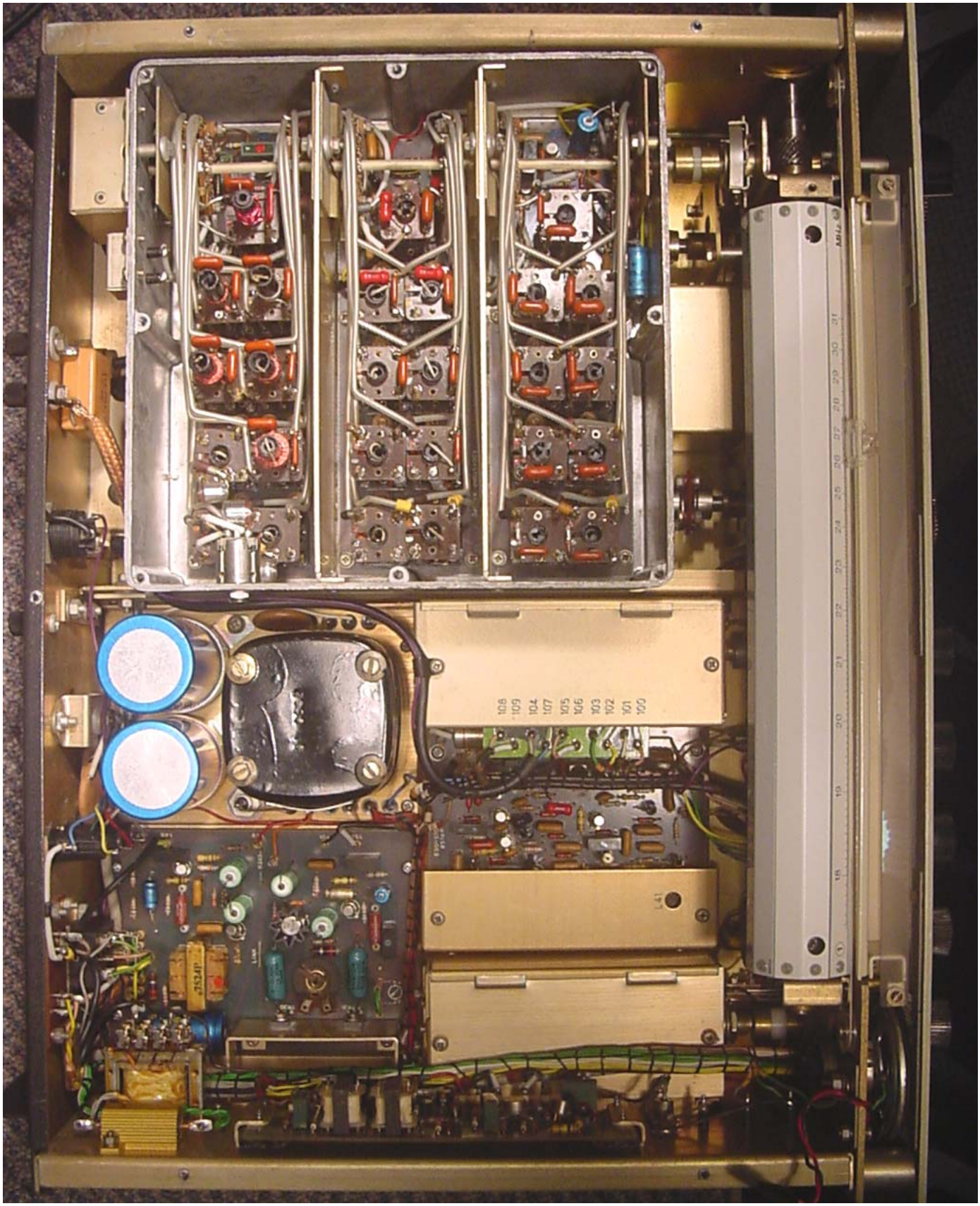
Above: Below-chassis view with tunable 1st IF unit cover removed



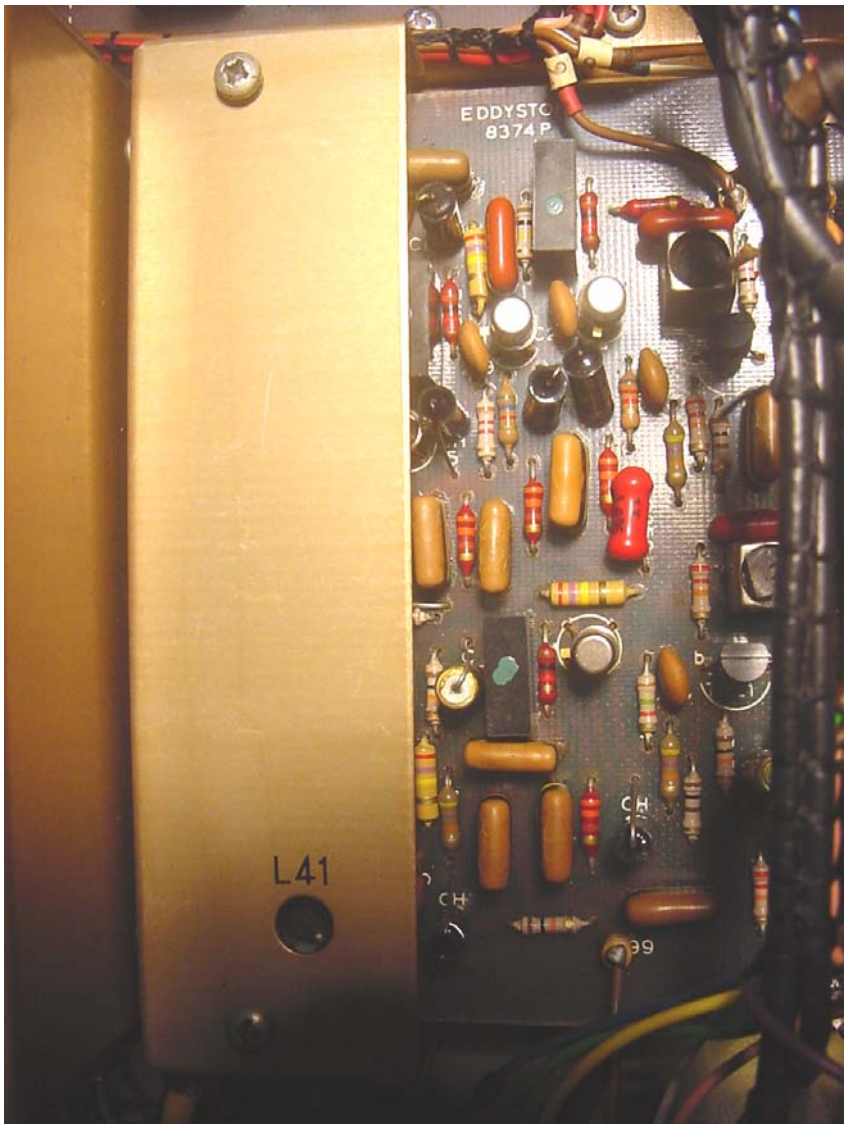
Left: Close-up of the tunable 1st IF unit. The incremental tuning knob rotates 30 turns for one complete traverse of the 100kHz tuning span. Note the provision for installing a crystal on the circuit board to lock the 1st IF frequency

Below: adjusting the tunable 1st local oscillator coil (L21) and trimmer (C121) slightly to bring Range 1 into alignment. Note that someone had 'been there before' as evidenced by the thin slivers of plastic film locking the cores in place – not the best method as these can jam the cores (use Rocol Kilopoise instead)



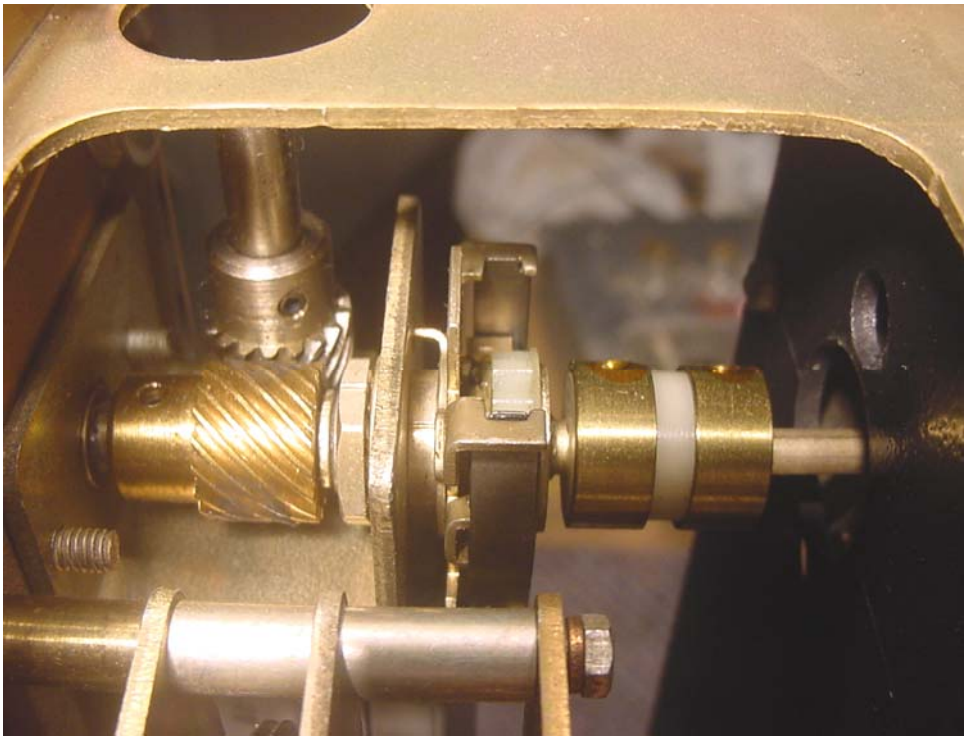


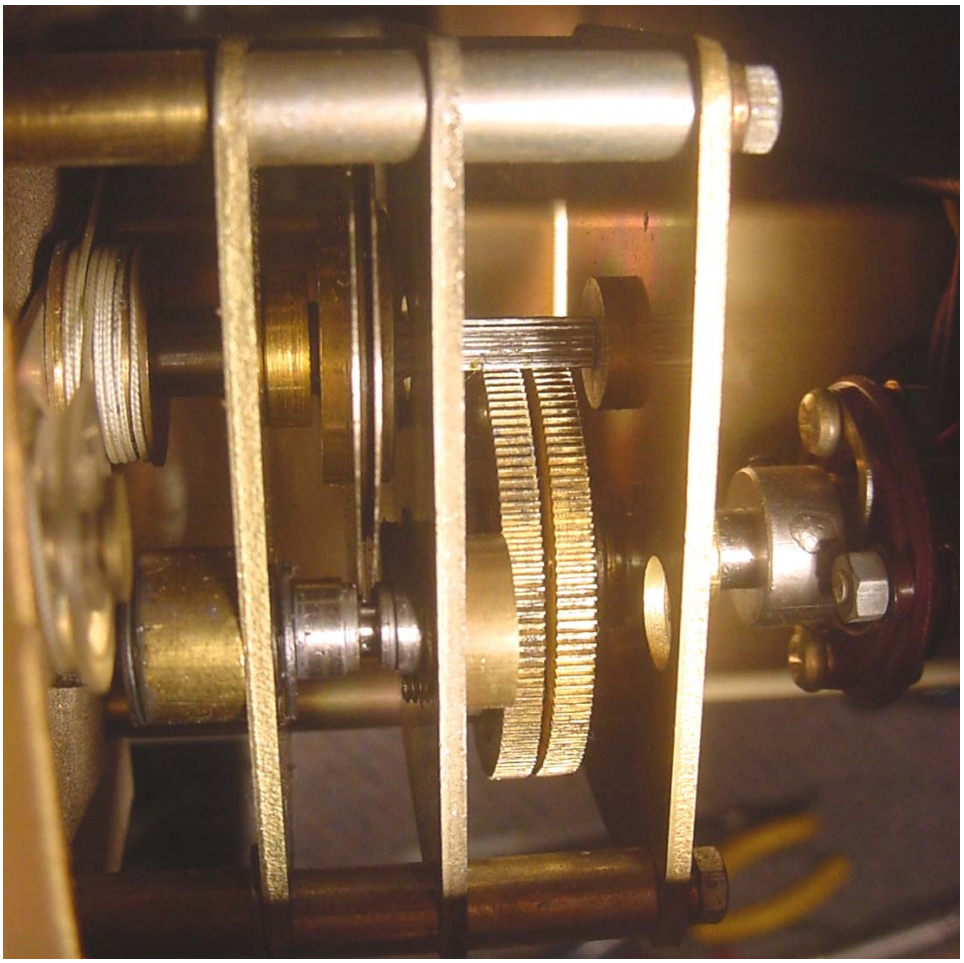
Above: Top view of chassis with coilbox cover removed during servicing



Left: 100kHz IF amplifier circuit board

Below: close-up of the RF section of the coilbox. One of the original (now perished) elastic core locking filaments has been replaced some time in the past with thin plastic strips

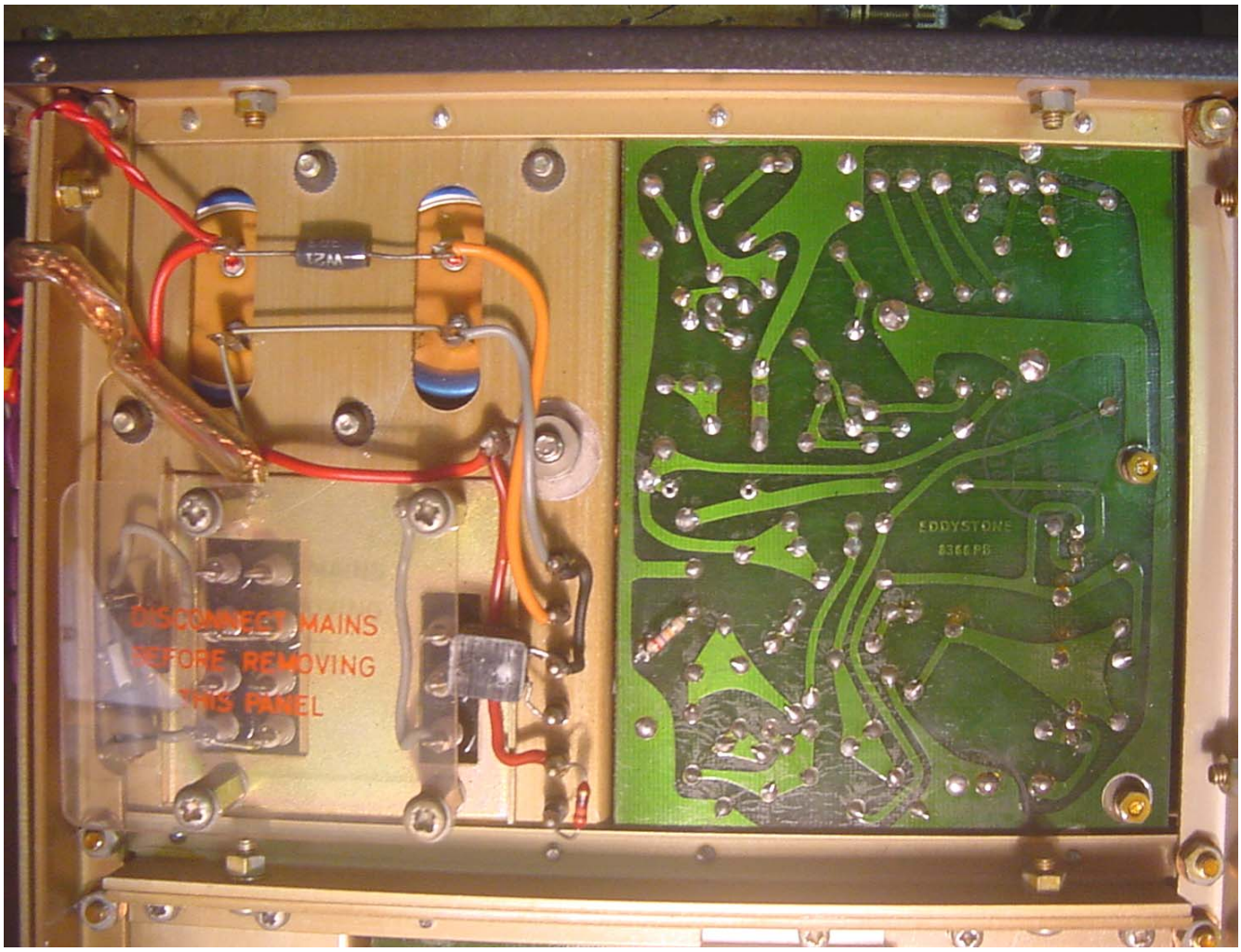




Main Tuning Mechanicals

Both of these photos were taken through a handy access panel that detaches from one of the side panels on the chassis

Left, top: band change mechanism – the front panel switch is to the left, turning the rotating drum (vertical-orientated shaft in the photo) via the 90-degree helical gear drive. The insulated coupler to the right connects the switch shaft into the coilbox. All looking good after 35 years - just a smidging of moly grease needed for another 35…
Left, bottom: close-up view of the main tuning gearbox (the incremental tuning gearbox is similar). The flywheel-loaded main tuning control shaft enters at the bottom left of the photo, turning the friction drive mechanism, the large dual-plate of which is coupled to the small pinion (upper centre of photo) and also to the spool-pulley for the dial cord (upper left of the photo). The pinion engages with the anti-backlash spring-loaded pair of brass gears beneath. These gears are affixed to a shaft that couples to the main tuning capacitor gang via the flexible coupler to the right of the photo. The main tuning knob rotates 50 times for one traverse of the dial



Above: Underside of the power supply and AF circuit board. Below: the 'Peak-RF' circuit board